

CLAIMS:

1. A test system (10) for testing a fire suppression system (100) for a determination of a flow ratio of at least two different constituents (2, 4) where the fire suppression system (100) is of a type that mixes the flow of the at least two constituents (2, 4) for distribution whereby only one of the two constituents (2, 4), is required for testing of the flow ratio, the system (10) comprising:

a control box (14);

a first constituent flow meter system (16); and

a second constituent line flow meter system (18), wherein the first constituent (2) is directed through the first constituent flow meter system (16), the first constituent (2) is directed through the second constituent line flow meter system (18), each flow meter system (16, 18) detecting a flow rate therein, and the control box (14) compares the flow rates of the first constituent (2) through each flow meter system (16, 18), and indicates the flow rate ratio had the second constituent (4) been directed through the second constituent line flow meter system (18).

2. The test system (10) of claim 1 wherein the system (10) is portable.

3. The test system (10) of claim 1 wherein the system (10) may be connected and disconnected to the fire suppression system (100).

4. The test system (10) of claim 1 wherein the control box (14) includes a pair of flow rate meters (30, 32).

5. The test system (10) of claim 4 further comprising a recording means (12).

6. The test system (10) of claim 5 wherein the recording means (12) is a flatbed recorder (12).

7. The test system (10) of claim 1 wherein the control box (14) is weatherproof.

8. The test system (10) of claim 1 wherein said first constituent flow meter system (16) receives first constituent (2) from a fire protection first constituent supply (15) at a flow rate appropriate for actual fire suppression conditions, and said second constituent line flow meter system (18) receives first constituent (2) from a water balance line (122).

9. The test system (10) of claim 8 further including a booster pump (312) between the second constituent line flow meter (18) and the water balance line (122) thereby

providing first constituent (2) with an inlet pressure to the second constituent line flow meter (18) appropriate for actual fire suppression conditions to an outlet pressure from the second constituent storage (102).

10. The test system (10) of claim 1 wherein first constituent (2) is discharged from the test system (10).

11. The test system (10) of claim 10 wherein first constituent (2) is discharged through a nozzle (230) providing a sufficient pressure to the test system (10).

12. The test system (10) of claim 1 wherein first constituent (2) is recovered from the test system (10).

13. The test system (10) of claim 1 wherein first constituent (2) is water (6).

14. The test system (10) of claim 1 wherein second constituent (4) is foam concentrate (8).

15. A test system (10) for testing fire suppression systems (100) for a determination of a flow ratio of at least two different constituents (2,4) where the fire suppression system (100) is of a type that mixes the flow of two constituents (2, 4) for distribution wherein testing is accomplished where actual flow of the mixed two constituents (2, 4) is measured for testing of the flow ratio, and wherein testing is accomplished where only one of the two constituents (2, 4), is required for testing of the predetermined ratio, the system (10) comprising:

a control box (14);

a first constituent flow meter system (16);

a second constituent line flow meter system (18), wherein the first constituent (2) is directed through the first constituent flow meter system (16), the first constituent (2) is directed through the second constituent line flow meter system (18), each flow meter system (16, 18) detecting a flow rate therein, and the control box (14) compares the flow rates of the first constituent (2) through each flow meter system (16, 18), and indicates the flow rate ratio had the second constituent (4) been directed through the second constituent line flow meter system (18);

a probe (58) for measuring the conductivity of the mixed constituents;

a conductivity controller (34) connected to said probe (58).

16. The test system (10) of claim 15 wherein the system (10) is portable.
17. The test system (10) of claim 15 wherein the system (10) may be connected and disconnected to a fire suppression system (100).
18. The test system (10) of claim 15 wherein the control box (14) includes a pair of flow rate meters (30, 32).
19. The test system (10) of claim 18 further comprising a recording means (12).
20. The test system (10) of claim 19 wherein the recording means (12) is a flatbed recorder (12).
21. The test system (10) of claim 15 wherein the control box (14) is weatherproof.
22. The test system (10) of claim 15 wherein said first constituent flow meter system (16) receives first constituent (2) from a fire protection first constituent supply (15) at a flow rate appropriate for actual fire suppression conditions, and said second constituent line flow meter system (18) receives first constituent (2) from a water balance line (122).
23. The test system (10) of claim 22 further including a booster pump (312) between the second constituent line flow meter system (18) and the water balance line (122) thereby providing first constituent (2) with an inlet pressure to the second constituent line flow meter system (18) appropriate for actual fire suppression conditions to an outlet pressure from the second constituent storage (102).
24. The test system (10) of claim 15 wherein first constituent (2) is discharged from the test system (10).
25. The test system (10) of claim 24 wherein the first constituent (2) is discharged through a nozzle (230) providing a sufficient pressure to the test system (10).
26. The test system (10) of claim 15 wherein the first constituent (2) is water (6).
27. The test system 10 of claim 15 wherein the second constituent 4 is foam concentrate (8).